Harold St. John.

Rhodora

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CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY,—NO. LXXXII

I. THE GENUS OXYTROPIS IN NORTHEASTERN AMERICA

M. L. Fernald

(Plates 171–175)

Oxytropis is so preëminently a genus of western North America and Eurasia that its occurrence in the northeastern section of North America has been looked upon as exceptional. With us it reaches its southern limit at about latitude 47°, though one species extends (along the St. John River) southward beyond 46°; but the material now accumulated shows that practically one-sixth of the North American species are found east of longitude 85° W. (on Melville Peninsula, Southampton Island, Baffin Island, the Labrador Peninsula, Newfoundland or the Gaspé Peninsula) and, since every recent expedition to an unexplored section of this area has brought back one or more additional species, it is probable that, when the region is better known, the number of species of *Oxytropis* in eastern America will be considerable. The situation in *Oxytropis* (and similarly in *Astragalus*) is quite parallel with that in such genera as *Salix, Epilobium, Antennaria, Arnica* and *Taraxacum.* In 1864 (DeCandolle's Prodromus) Andersson recognized 19 species of *Salix* in this area; we now know more than 40. In 1891 Trelease recognized in the region 7 species of *Epilobium;* we now know 20. In the Synoptical Flora, in 1878, Gray recognized in the area 4 species of *Antennaria,* 2 of *Arnica* and 1 (indigenous) of *Taraxacum;* today we know 23 of *Antennaria,* 10 of *Arnica* and 8 of *Taraxacum.* That the development of our knowledge of *Oxytropis* in northeastern America is parallel

with these cases is indicated by the facts that in 1884, in his *Revision of the North American Species of the Genus Oxytropis*, Gray definitely recognized in the area east of longitude 85° only 2 species but today we know at least 10; and, as stated, every competent expedition into new territory in the region may be counted upon to secure others.

In restudying the eastern American material, much of which is of my own collecting, it has been found necessary, in light of more abundant material, greatly to alter the old interpretations based on inadequate specimens; and during this review, the necessary study of close allies from farther west has shown some cases in which we have misinterpreted the identities. These new interpretations are, consequently, here recorded and several of the new species are illustrated by photographs generously supplied by Professor J. Franklin Collins. Since finishing the work upon the material in the Gray Herbarium I have had the great advantage of seeing the remarkable series of specimens in the National Herbarium at Ottawa,[1] most kindly placed at my disposal by Dr. Malte. In order to bring to date our knowledge of the group the following is offered as

A Synopsis of Oxytropis in Eastern America

a. Stipules nearly free from the petioles: flowers and fruits reflexed, the latter becoming secund: corolla violet, at most 1 cm. long ..... 1. *O. foliolosa.*

a. Stipules strongly adnate to the petioles: flowers and fruits ascending or spreading, not secund: corolla violet, purple, white or yellow, 1–2 cm. long ....*b.*

b. Loosely or densely cespitose, but hardly pulvinate: principal leaves 0.3–3 dm. long, with 11 or more green (but often silky) leaflets: scapes 0.15–3.3 dm. high: spikes (except in obviously dwarfed individuals) 3–many-flowered ....*c.*

c. Leaflets opposite, subopposite or alternate, not verticillate (except in aberrant leaves) ....*d.*

d. Inflorescences viscid or glutinous; the bracts and legumes often verrucose ....*e.*

e. Leaves mostly 1–2 dm. long, with 30–35 thin leaflets: scapes 0.5–1.7 dm. high: spike many-flowered, 2–5 cm. long: flowers and fruits strongly ascending: calyx white-villous: corolla yellowish-white, with a purple spot on the keel ..... 2. *O. gaspensis.*

e. Leaves 2–6 cm. long, with 19–33 thick leaflets: scapes 1.5–4.5 cm. high: spike subcapitate, 1.5–2.5 cm. long: flowers and fruits spreading: calyx black-villous: corolla purple ..... 3. *O. hudsonica.*

d. Inflorescences not obviously viscid; bracts and legumes not verrucose ....*f.*

[1] In this synopsis specimens seen by me only in the National Herbarium of Canada are designated by "(Can)."

f. Marcescent stipules very bristly-ciliate: pubescence of scapes divergent. . . . *g.*
g. Corolla yellow or yellowish-white: legume ovoid: stipules castaneous, glabrous on the back, with prolonged linear-lanceolate tips. . . . . 4. *O. Maydelliana.*
g. Corolla violet: legume oblong-cylindric: stipules whitish, pubescent, abruptly short-acuminate. 5. *O. arctica.*
f. Marcescent stipules sparingly if at all ciliate, mostly eciliate or merely with few terminal bristles: pubescence of scapes mostly appressed: corolla purple or violet. . . . *h.*
h. Free blades of stipules 0.6–1.8 cm. long: leaves 0.5–3 dm. long, with leaflets 0.6–3 cm. long: scapes 0.5–3.3 dm. high: spike (except in obviously dwarfed plants) elongating, several–many-flowered, 2–11 cm. long: bracts lance-attenuate, 5–11 mm. long, herbaceous, strongly pubescent on the back: calyx-teeth lanceolate, 1.5–3 mm. long: vexillum 7–10 mm. broad: seeds as high as long. . . . . 6. *O. johannensis.*
h. Free blades of stipules 2–7 mm. long: leaves 2–9 cm. long, with leaflets 2–8 mm. long: scapes 0.15–1.2 dm. high: spike subcapitate, few-flowered, 1.5–3 cm. long: bracts lanceolate to elliptic, obtuse or acute, 3–5 mm. long, subchartaceous, glabrous or sparingly pubescent: calyx-teeth deltoid, 0.5–1.5 mm. long: vexillum 5–8 mm. broad: seeds longer than high. . . . 7. *O. terrae-novae.*
c. Leaflets (or many of them) verticillate, 2, 3 or 4 together. . 8. *O. Belli.*
b. Densely cespitose or pulvinate: principal leaves 0.5–3 cm. long, with 5–11 white-pubescent minute leaflets: scapes filiform, 0.5–2 cm. high: flowers 1 or 2, violet. . . . *i.*
i. Foliage white-villous; leaflets oblong or narrowly obovate: legume sessile within the calyx, linear- to oblong-subcylindric, subcoriaceous, 2–3 cm. long, 4–5 mm. in diameter. . . . . 9. *O. arctobia.*
i. Foliage white-silky; leaflets linear or linear-lanceolate: legume distinctly stipitate within the calyx, inflated, ovoid, membranaceous, 1.5–2 cm. long, 7–12 mm. in diameter. . . . . 10. *O. podocarpa.*

1. O. FOLIOLOSA Hook. Acaulescent, with multicipital caudex: leaves numerous, strongly divergent or subascending, 2–9 cm. long; stipules lanceolate, pilose; petiole and rachis filiform, pilose; leaflets 15–29, in approximate pairs, narrowly ovate, obtuse or subacute, 2–8 mm. long, appressed-pilose: scapes 2–15 cm. high, pilose: spike compact, subglobose to ovoid, 1–3 cm. long, with the 2–10 flowers at first ascending, later divergent and finally reflexed and secund: bracts linear-lanceolate, pilose, short: calyx campanulate, black-pilose; the tube 2.6–3.5 mm. long, truncate at summit, about equaled by the lance-subulate lobes; the sinuses rounded and broad: corolla deep-violet, but whitish at base, 8–10 mm. long; the vexillum 4.5–5 mm. broad; the obtuse keel with a conspicuous straight or recurving cusp: legumes reflexed, stipitate within the calyx, subcylindric, 1–1.5 cm. long, 3–4 mm. in diameter, black-hirsute.—Fl. Bor.-Am. i. 146

(1834); Fernald, Rhodora, xxviii. 103, 105, 106, 216 (1926). *O. foliosa* Torr. & Gray, Fl. N. A. i. 339 (1838). *O. deflexa* Gray, Proc. Am. Acad. vi. 236 (1864), in part, ibid. xx. 1 (1884), in part; Bunge, Mém. Acad. Imp. Sci. St. Pétersb. sér. 7, xxii. 39 (1874), in part; not DC. (1802). *Aragallus foliolosus* (Hook.) Rydb. Mem. N. Y. Bot. Gard. i. 256 (1900).—Rocky Mountains from Yukon to high summits of Colorado; Hudson Strait, Quebec; Pistolet Bay, Straits of Belle Isle, Newfoundland. The following are the collections from eastern America. Ungava District, Quebec: "Northern Labrador," *A. P. Low*, no. 18,668 (Can); gravelly seashore, Wakeham Bay, Hudson Strait, *Malte*, no. 118,334. Newfoundland: dry gravelly limestone barrens, Burnt Cape, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss*, no. 28,599; dry limestone gravel, Schooner (or Brandy) Island, *Pease & Long*, no. 28,600; sandy and turfy upper border of limestone beach, Cook Point, *Fernald & Gilbert*, no. 28,601.

O. foliolosa closely simulates the arctic-alpine *O. lapponica* (Wahlenb.) J. Gay of Eurasia but is distinguished at once by its less connate stipules with much narrower and longer free blades. By Gray and by Bunge as well as by many recent authors it has been merged with the Siberian *O. deflexa* (Pall.) DC. and its Rocky Mountain representative, *O. retrorsa*,[1] but it differs from them both in its compact

[1] Oxytropis **retrorsa**, n. sp., *O. deflexam* simulans; calycis dentibus lanceolatis 4–5 mm. longis approximatis sinubus acutis.—Saskatchewan and southern Alberta to New Mexico. Type from Colorado: meadows, vicinity of Como, South Park, August 3, 1895, *Crandall & Cowen*, no. 152, in Gray Herb.

This is the plant regularly passing in America as *Oxytropis deflexa* (Pall.) DC. or as *Aragallus deflexus* (Pall.) Heller. *O. deflexa*, however, was based upon *Astragalus deflexus* Pall. Acta Acad. Petrop. ii. 268, t. 15 (1779). In his Species Astragalorum, 33, t. xxvii. (1800), Pallas changed the name to *A. retroflexus* but made no material alteration and his beautiful plate shows the plant of Transbaikalia with calyx-tube truncate, with broad rectangular sinuses between the short and setaceous teeth. Material of authentic *O. deflexa* from Transbaikalia in the Gray Herbarium exactly coincides with Pallas's descriptions and plates and shows that the America plant with lanceolate, approximate calyx-lobes and acute sinuses has been erroneously referred to it.

Typical *Oxytropis retrorsa*, when well developed, has the stems elongate, with 2–5 internodes, the pubescence sordid and villous, the calyx 7–9 mm. long and fuscous- or black-pubescent, the petals bluish at apex. In more northern or more alpine situations it becomes acaulescent or subacaulescent, with more silvery pubescence, smaller leaves, pale calyx only 3.5–5.5 mm. long and paler corolla, often merely white. This is the plant which was called by Torrey & Gray *O. deflexa*, β *sericea*. In its extreme form it seems abundantly distinct from the larger *O. retrorsa* but so many intermediates occur that it is best treated as

O. retrorsa, var. **sericea** (Torr. & Gray), n. comb. *O. deflexa*, β. *sericea* Torr. & Gray, Fl. N. A. i. 342 (1838). The following are characteristic. Yukon: Carmacks, Yukon River, *Eastwood*, no. 573. Alberta: Laggan, *J. Macoun*, no. 65,069; vicinity of Basin, *S. Brown*, no. 807; gravelly soil, Banff, *Moodie*, no. 1278. Montana: Suksdorf Gulch, northwest of Wilsall, *Suksdorf*, no. 215. Idaho: Wildhorse Creek, Custer Co., *Eggleston*, no. 14,023; moist grassy lands, Mackay, Custer Co., *Nelson & Macbride*, no. 1426. Wyoming: bars of Gros Ventre River, Jacksons Hole, *Merrill & Wilcox*, no. 963. Utah: slope of Aquarius Plateau, *L. F. Ward*, no. 457.

Outside Siberia and North America *Oxutropis deflexa* has been reputed to grow only in arctic Norway (Finmark). It is there very rare, at a single mountain-station

habit, closely aggregated flowers, the spike not elongating as in *O. deflexa* and *O. retrorsa*, and larger and deeper colored corolla, its inflorescence very closely matching that of *O. lapponica*. In its calyx it is closer to the latter species and to the Siberian *O. deflexa* than to the Rocky Mountain *O. retrorsa*.

2. O. GASPENSIS Fern. & Kelsey. PLATE 171. Acaulescent: leaves strongly ascending; leaflets 30–35, oblong or oblong-lanceolate, mostly obtuse, 0.8–1.3 cm. long, 2–5 mm. wide, thin, herbaceous, loosely strigose-villous on both surfaces and somewhat viscid (staining pressing-paper yellow): scapes 0.5–1.7 dm. high, shorter than or scarcely exceeding the leaves, silky-pilose with white hairs: spikes dense, in anthesis 2–3 cm. long, in fruit 3–5 cm. long: bracts lanceolate, herbaceous, 5–10 mm. long, viscid, sometimes verrucose: flowers numerous, ascending: calyx campanulate, white-villous; the tube 4–5 mm. long; the teeth deltoid, viscid, 1–2 mm. long: corollas yellowish-white, 1–1.2 cm. long, purple-maculate on the keel: legume short-ovoid, 1–1.3 cm. long, abruptly acuminate, viscid and white-villous, chartaceous, nearly 2-celled: seeds reniform, 1.6–2 mm. long.—RHODORA, xxx. 123 (1928).—Known only from Gaspé Co., QUEBEC: on exposed cliffs along the Gaspé coast, Mont Louis, August 10, 1882, *J. Macoun*, no. 5343 (Can), distributed as *O. campestris;* talus of slaty cliffs, Mt. St. Pierre, near mouth of Rivière à Pierre, *Fernald & Smith*, no. 25,874, distributed as *O. viscida* Nutt.; same locality, Rivière à Pierre, *Kelsey & Jordan*, no. 96.

An eastern American representative of *O. viscida* Nutt. and *O. viscidula* (Rydb.) Tidestrom; in its viscid quality approaching these violet-flowered species. Also very similar to *O. gracilis* (A. Nels.) K. Schum., but with shorter scapes, denser spikes and characteristic viscidity.

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where it was discovered by Norman in 1883 and misidentified as *O. lapponica*. It was later separated by Dahl in Blytt, Norges Fl. ed. Dahl, 466 (1906) as *O. deflexa*, but said to differ from the Siberian plant in its shorter stem, fewer leaflets, shorter and black-hairy calyx and white-hairy young pods ("Vor form adskiller sig fra sibiriske eksamplarer isaer ved kortere stengel, faerre smaablade, mere kort- og sorthaaret baeger og de unge belges hvide haar-beklaedning, men stemmer i disse karakterer med Bunges beskrivelse af nord-amerikanske former."). Subsequently, in 1926, Carl Th. Mörner (Svensk Bot. Tisdkrift, xx. 344), reviewing the discovery of the Finmark plant, emphasized that all the earlier collections, by Norman in late August, 1883 and by Dahl in August, 1903, when the plant was first identified as *O. deflexa*, and again in 1913 and 1915, showed fruit and that Dahl's description of the corolla as violet was an assumption. Mörner, visiting the station earlier, in July, found the plant in flower, the corollas white, not violet, and thus departing from the violet or bluish flowers usually described from Siberia and western America. I have seen no Finmark specimens but its short stem, shorter calyx, white corollas and white-pubescent legumes suggest *O. retrorsa*, var. *sericea;* but the black-hairy calyx is not characteristic for the latter plant.

3. O. **hudsonica** (Greene), n. comb. Plate 172. Acaulescent: stipules broadly ovate, acuminate, glutinous, bristly-ciliate and hirsute: leaves 2–8 cm. long; leaflets 19–33, thick, oblong, 2–4 mm. long, with strongly elevated ciliate margins, glabrous above, pilose to glabrate beneath: scapes 1.5–4.5 cm. high, viscid-villous: spike subcapitate, 1.5–2.5 cm. long, of 6–16 spreading flowers: bracts oblong-lanceolate, 4–10 mm. long, firm, glutinous and commonly verrucose, more or less black-hairy: calyx campanulate, black- (or white-) hairy; the tube 4–6 mm. long; the teeth deltoid, 1–2 mm. long: corollas purple (drying bluish), 1.2–1.7 cm. long; the vexillum about 6 mm. broad: legume slenderly ovoid; the body 1.5 cm. long, tapering to a long straight beak, pilose and glandular-verrucose.—*Aragallus Hudsonicus* Greene, Proc Biol. Soc. Wash. xviii. 17 (1905).—About Hudson Bay and westward to Mackenzie District. Quebec: along the east coast of Hudson Bay, Great Whale River, *A. P. Low*, no. 14,272 (type no.);[1] north of Cape Jones, *Low*, no. 63,166. Keewatin: Chesterfield Inlet, *J. W. Tyrrell*, no. 101,050, Nat. Herb. Can. (Can); Rankin Inlet, *J. M. Macoun*, no. 79,104. Ontario: sandy soil, Fort Severn, *J. M. Macoun*, no. 5344, as *O campestris* (Can). Mackenzie Distr.: Artillery Lake, *J. W. Tyrrell*, no. 23,150 as *O. campestris*, var. *caerulea* (Can); west shore, Great Bear Lake, *J M. Bell*, no. 22,895 as *O campestris*, var. *caerulea* (Can).

4. O. Maydelliana Trautv. Acaulescent: stipules marcescent, castaneous or fulvous; the free blades glabrous, ovate, tapering to elongate linear-lanceolate bristly-ciliate or finally glabrate tips: leaves 3–10 cm. long, strongly ascending; the 11–17 elliptical to lanceolate obtuse to acute leaflets 3–12 mm. long, sericeous or glabrate beneath (and rugulose upon drying), commonly somewhat sericeous above: scapes 0.3–1.5 dm. high, villous and more or less appressed-pilose: spike subcapitate, 1.5–3.5 cm. long: bracts lanceolate, 4.5–7 mm. long, black-hairy, sometimes with pale hairs intermixed: calyx campanulate, densely black-villous (or sometimes with longer pale hairs); the tube 4–5 mm. long, with lance-deltoid black-hairy teeth 0.5–2 mm. long: corolla yellow or yellowish-white, 1–1.4 cm. long; the vexillum 4–5 mm. broad: legume ovoid, with the distended body about 1.3 cm. long and narrowed abruptly to a long straight beak.—Acta Horti Petrop. vi. 16 (1879); Kjellman, Vega Exped. Betensk, Arb. i. 523(1882). *O. campestris* var. ξ. *melanocephala* Hook. Fl. Bor. Am. i. 147 (1834); Torr. & Gray, Fl. N. A. i. 341 (1838); Ostenfeld, Vasc. Pl. Arct. N. Am. Gjöa Exped. 20, t. ii. fig. 12 (1910); Fernald, Rhodora, xxv. 113 (1923). *O. leucantha* Gray, Proc. Am. Acad. xx. 5 (1884), in part; Macoun, Cat. Can. Pl. i. 510 (1886);

[1] Greene originally cited no. 14,272, distributed from the Geol. Surv. of Canada, as collected by *A. P. Low*, and such a sheet, with *Low* given as collector, is in the Gray Herbarium. In the National Herbarium of Canada the specimen of same locality, date and number bears a label in the handwriting of the late John Macoun, but the collector is given as *Spreadborough*.

not *Astragalus leucanthus* Pall. Sp. Astrag. 59, t. 47 (1800). *O. campestris*, var. *sordida* Macoun & Holm, Can. Arct. Exped. v. Bot. Pt. A. 16a (1921), in part, not Willd.—Arctic and subarctic America and Chukches Land in adjacent northeastern Asia. The following are definitely referable here. Baffin Island: gravel beaches above tundra, Arctic Bay, Admiralty Inlet, *Malte*, no. 118,340; gravelly hill above tundra, Pond Inlet, Eclipse Sound, *Malte*, no. 118,337; rocky knolls by seashore, Lake Harbor, *Malte*, no. 118,338; Bowdoin Harbor, *Ralph Robinson*, no. 14; *Soper*, no. 837 (Can); Cape Dorset, *Soper*, nos. 745, 783 (Can). Ungava District, Quebec: Erick Cove, Hudson Strait, *A. P. Low*, no. 22,991; crevices of rock, Digges Island, Hudson Strait, September 15, 1884, *Robt. Bell.* Keewatin District: Wager Inlet, *J. M. Macoun*, no. 79,103. King William Land: Gjöa Harbor, July, 1904, *Godfred Hansen* (Can). Mackenzie District: Bathurst Inlet, *R. M. Anderson*, no. 592 (Can); south coast of Coronation Gulf, *Cox & O'Neil*, nos. 399 and 399[a] (Can); old specimen in Gray Herb., received from Herb. Hooker, labeled "Drummond, *Ox. campestris*, Polar Sea," with the pertinent note added by Gray: "If 'Polar Sea,' then not 'Drummond'"; "Parry's Voyage," material mixed with *O. arctica*, sent to Asa Gray from Herb. Benth. as *O. arctica* R. Br.; an identical specimen sent the Gray Herbarium, without name, from the British Museum as coll. on Parry's 2d voyage. Yukon: Herschell Island, *Frits Johansen*, no. 234[a] (Can). Alaska: Cape Nome, 1900, *Blaisdell.*

It is impossible, without seeing the actual specimens, to accept as positively belonging to *O. Maydelliana* all the Arctic American material cited by different authors as *O. campestris*, *O. campestris*, var. *sordida*, *O. campestris*, var. *melanocephala* and *O. leucantha.* This difficulty is due to the fact that there is another plant with yellow flowers in Arctic America which has been passing as *O. campestris*, vars. *sordida* and *melanocephala.* This is shown by *Frits Johansen's* no 332 (Herb. Geol. Surv. Can. no. 98,415) from Bernard Harbor, by *Girling*, nos. 690 and 691 (Can) from Clifton Point (west end of Dolphin and Union Strait) and by *Jenness*, no. 368 (Can) from Wollaston Land. This plant has yellow and comparatively small corollas and small calyx with short teeth, thus closely simulating *O. Maydelliana;* but its stipules are pale, thin and densely pubescent, instead of castaneous, chartaceous and glabrous. The firm and castaneous old stipules are very conspicuous in all the specimens above cited as *O. Maydelliana* and these characters have been emphasized by all who have studied it. Thus, in the original description and discussion of *O. Maydelliana*, Trautvetter said: "stipulis . . . glabris, longe setosociliatis, rigidulis, herbaceis, demum fuscis et pergameneis"; Macoun,

calling the common plant *O. leucantha*, said: "Specimens very distinct; stipules chestnut colored and conspicuous" and Ostenfeld, treating it as *O. campestris*, var. *melanocephala*, "a very remarkable form of *O. campestris*" which "merits perhaps to be reckoned as a separate species," said "It differs from *O. campestris* . . . in . . . old stipules 'chestnut coloured and conspicuous' . . . —this is a very distinct character." Ostenfeld further states that the plants of Chuckches Land brought back by Kjellman "agree exactly both with the description of *O. Maydelliana* Trautv. (they have been so named by Kjellman . . .) and with the authentic specimens of *O. campestris*, var. *melanocephala* Hook., and I feel sure therefore that the two names are merely synonyms."

The Johansen, Girling and Jenness material with whitish and densely pubescent scarious stipules probably belongs to *Oxytropis borealis* DC. Prodr. ii. 275 (1825), described, like *O. Maydelliana*, also from Chuckches Land ("terra Tschuktschorum") and regularly taken by Asa Gray to be identical with his "*O. leucantha*." De Candolle's description was brief but hardly applicable to *O. Maydelliana*, for it had the diagnostic character "Stipulae pallidae."

5. O. arctica R. Br. Plate 172. Acaulescent: stipules membranaceous or scarious, whitish-villous, persistent; the free blades deltoid, tapering to lanceolate tips: leaves 2–7 cm. long, with 11–17 oval or oblong villous-sericeous or finally glabrate leaflets 2–6 mm. long: scapes 2.5–7 cm. high, villous with variously mixed black, sordid or pale hairs: spike subcapitate, 2–5-flowered: bracts linear-lanceolate, black-villous: calyx slenderly campanulate, densely black-hairy; the tube 5–6 mm. long; the linear teeth broadened at base, erect or divergent, black-hairy, 1.5–2.5 mm. long: corolla violet, 1.6–2 cm. long; the vexillum 4–7 mm. broad: legume oblong-cylindric, incompletely 2-celled.—App. Parry 1st Voy. 278 (1823); Gray, Proc. Am. Acad. xx. 4 (1884) in part; Simmons, Phytogeogr. Arct. Am. Archipel. 112 (1913). *O. arctica*, α *subumbellata* Hook. Fl. Bor.-Am. i. 146 (1834). *Spiesia arctica* (R. Br.) Kuntze, Rev. Gen. 206 (1891). *Aragallus arcticus* (R. Br.) Greene. Pittonia, iii. 211 (1897).—Melville Island, *Sabine*, *Edwards*, *Ross*. Mackenzie District: between Coppermine River and Cape Alexander, *Rae*.

Oxytropis arctica has been reported from several stations within our area, but I have seen no material from the Hudson Bay area, the Labrador Peninsula or the region of the Gulf of St. Lawrence. Macoun (Cat. Can. Pl. i. 115, 509) recorded it first as *O. uralensis*, var. *pumila* Ledeb., later as *O. arctica*, from St. Paul's Island, Nova Scotia (*McKay*), and from Digges Island, Hudson Strait (*Bell*); Britton &

Brown, Ill., Fl. ed. 2, ii. 389 cite it from "Shores of the Gulf of St. Lawrence; Hudson Strait, Hudson Bay, and along the Arctic seacoast"; and among the numerous stations given by Simmons is Southampton Island (in Hudson Bay). In his account of the collections of Melville Island, Robert Brown gave only one *Oxytropis*, his new species *O. arctica*, with "*Caules* . . . basi stipulis villosissimis persistentibus imbricatis tecti. . . . foliola 11–17 . . . . Stipulae membranaceae, . . . apicibus solutis semilanceolatis . . . . *Scapi* . . . villosi . . . . *Capitulum* 3–5-florum . . . . *Calyx* villis nigris subadpressis copiosis tectis, dentibus erectis brevibus. *Corolla* caeruleo-violacea, calyce duplo longior (9–10 lin. aequans)," etc. In the Melville Island collections of Parry's Voyage in the Gray Herbarium there are three species: a violet-flowered plant with pale stipules and subumbellate spike such as was described by Brown; a yellow-flowered plant with castaneous stipules, *O. Maydelliana;* and the densely cespitose white-villous *O. arctobia* Bunge. Others have already noted the fact that Brown overlooked the presence in the Melville Island collection of more than one species; but I have here restricted my interpretation of *O. arctica* to the violet-flowered plant from which the original description was obviously drawn.

In regard to the occurrence of *O. arctica* about Hudson Bay, Hudson Strait and the Gulf of St. Lawrence, all specimens I have seen from these areas prove to be something else. No material of *Oxytropis* from St. Paul's Island in the Gulf of St. Lawrence is known. In answer to my inquiry regarding his reputed collection of it Dr. A. H. McKay once wrote me that he collected no material, but merely made a tentative field-identification of the plant seen. Since no *Oxytropis* is known about the Gulf of St. Lawrence except in the Gaspé region and in western Newfoundland (all together four species) it is highly important to secure good material of the plant of St. Paul's Island. The Digges Island plant collected by Bell and distributed as *O. arctica* is partly *O. Belli*, partly *O. Maydelliana*, and other Hudson Bay specimens distributed by the Geological Survey of Canada as *O. arctica* are *O. hudsonica*, one of them (*Low*, no. 14,272) being the type-collection of that species.

6. O. **johannensis** (Fernald), n. comb. PLATE 173. Acaulescent: stipules whitish, membranaceous, villous-hirsute when young, becoming glabrate or merely bristly-ciliate at tip; the lanceolate to ovate free blades 0.6–1.8 cm. long: leaves 0.5–3 dm. long; petiole and rachis appressed-pubescent; the 15–31 linear-lanceolate to oblong leaflets

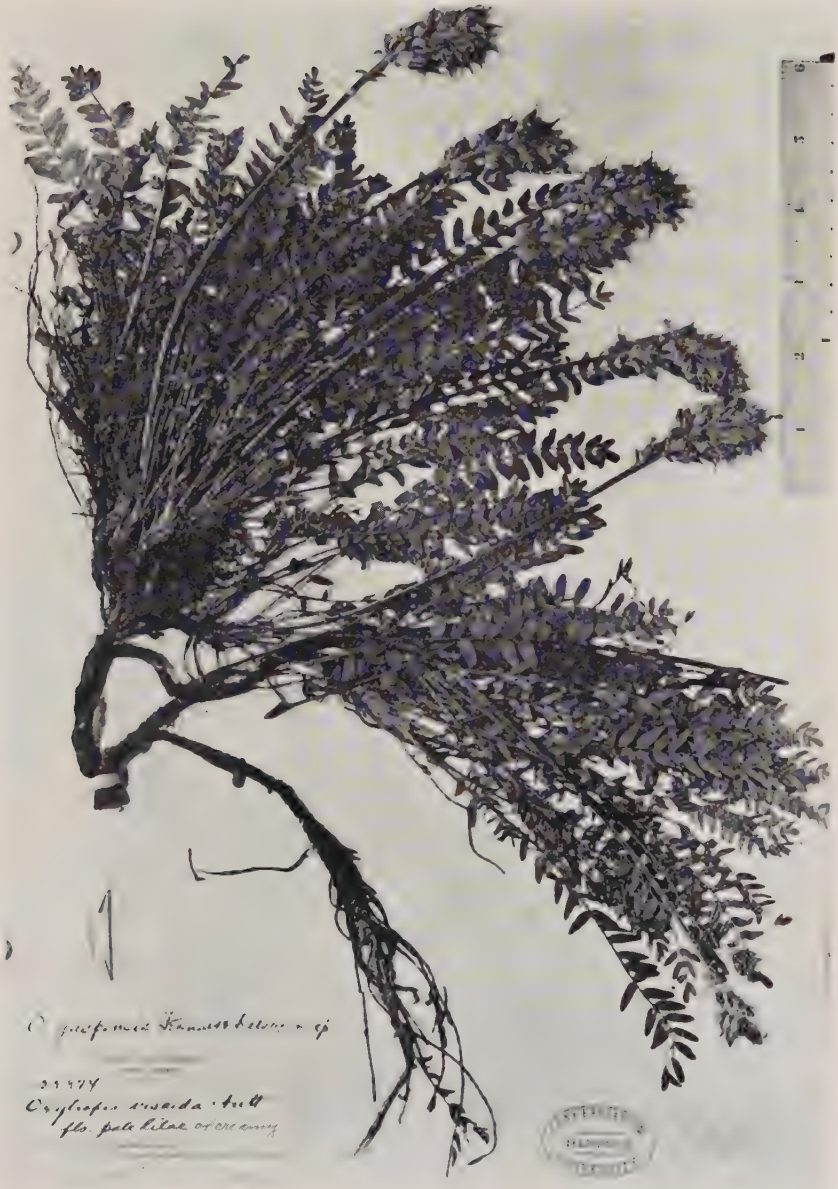
0.6–3 cm. long, 1–6 mm. broad, from densely sericeous to glabrate: scapes 0.5–3.3 dm. high, appressed-pubescent: spike several–many-flowered, elongating and loose in maturity, 2–11 cm. long: bracts lance-attenuate, 5–11 mm long, herbaceous, silky-villous on the back with pale hairs, sometimes with black ones admixed, becoming glabrate: calyx silky-villous with pale or dark hairs; tube campanulate, 5–7 mm. long; teeth lanceolate, pubescent, 1.5–3 mm. long: corolla 1.5–2 cm. long, purple or purple-violet (rarely whitish); the vexillum 7–10 mm. broad: legumes strongly ascending, rather firm, thick-cylindric to obliquely lance-ovoid, 1.5–2 cm. long, tapering to a straightish beak, almost 2-celled, appressed-pubescent with black, white or mixed hairs: seeds black, obliquely round-reniform to cordate-ovate, as high as broad, 1.8–2 mm. broad.—*O. campestris*, var. *Johannensis* Fernald, Rhodora, i. 88 (1899). *Aragallus johannensis* (Fernald) Heller, Cat. N. A. Pl. ed. 2: 7 (1900). *O. Lamberti* α Hook. Fl. Bor.-Am i. 147 (1834), the plant of *Lady Dalhousie*, *Mrs. Percival* and *Mrs. Sheppard*. *O. Lamberti* δ ? Torr. & Gray, Fl. N. A. i. 339 (1838); Gray acc. to Goodale, Prelim. Rep. Nat. Hist. & Geol. Me. (1861) 366. *O. uralensis* β. Gray acc. to Goodale, l c. (1862) 125, not Torr. & Gray. *O. campestris* Gray, Proc. Am. Acad. vi. 235 (1864), as to Maine plant and Man. ed. 5: 133 (1867); Britton in Britton & Brown, Ill. Fl ed. 2, ii. 390 (1913), as to plant of Quebec, Maine and New Brunwick; not DC. *O. campestris*, var. *caerulea* Gray, Proc. Am. Acad. xx. 6 (1884), as to plant of Maine and Lower Canada; Wats. & Coult. in Gray, Man. ed. 6: 137 (1889) in part; not Koch. *O. Lamberti*, var. *sericea* Fernald in Hay, Bull. Nat. Hist. Soc. N. B. xii. 69 (1894) and Proc. Portl. Soc. Nat. Hist. ii. 79 (1895), not Gray. *Spiesia campestris* Britton in Britton & Brown, Ill. Fl. ii. 308 (1897), as to plant of Quebec, Maine and New Brunswick, not Kuntze.—Western Newfoundland, eastern Quebec, New Brunswick and northern Maine. Newfoundland: turfy and gravelly shelves, crests or talus of diorite, Ha-Ha Mountain, Ha-Ha Bay, *Pease & Griscom*, no. 28,602; Ha-Ha Point, *Fernald & Long*, no. 28,603; dry limestone cliffs and talus, western face of Doctor Hill, Highlands of St. John, *Fernald & Long*, no. 28,605; conglomerate limestone and calcareous sandstone cliffs and ledges, Cow Head, *Fernald & Wiegand*, no. 3633; high sea-cliffs, Chimney Cove, July 18, 1895 and August 13, 1896, *Waghorne;* headlands, Green Gardens, Cape St. George, *Mackenzie & Griscom*, no. 11,054 (dwarf extreme); some material from Table Mountain, Port-à-Port Bay suggests a mixture of this and the next species. Quebec: Bonaventure conglomerate (calcareous) sea-cliffs, Bonaventure Island, Gaspé Co., *Fernald & Collins*, no. 1110, *Victorin, Rolland-Germain, Brunel & Rousseau*, no. 17,251; banks of Grand River, Gaspé Co., June 20–July 10, 1903, *Geo. H. Richards*, June 30 July 3, 1904, *Fernald;* ledgy banks of Restigouche River, Matapedia, June 28, 1904, *Fernald;* limestone and limestone-conglomerate ridges from Pointe aux Corbeaux to Cap Caribou, Bic,

Fernald & Collins, nos. 1107, 1108; crevices and talus of limestone-conglomerate sea-cliffs, St. Fabien, *Fernald & Collins*, no. 1109; Isle d'Orleans, *Mrs. Sheppard*, 1864, *Brunet*, 1922, "rare," *Rolland*, no. 16,130. New Brunswick: Nepisiguit River, *Fowler;* mouth of Tobique River, *Hay;* rocky bank, Aroostook Falls, *Hay*, no. 5342 (Can); crevices of calcareous ledge, Gorge of Aroostook River, Andover, July 17, 1902, *Williams, Collins & Fernald;* crevices of rock by St. John River, Woodstock, *J. Macoun*, no. 21,166 (Can); gravelly island in the St. John River, Upper Queensbury, *Fernald & Pease*, no. 25,168; islands of St. John River, Fredericton, *L. W. Bailey*. Maine: on the St. John near Seven Islands, 1861, *Goodale;* shores of the St. John, August 22, 1879, *Pringle;* rocky islet in St. John River, St. Francis, July 20, 1900, *E. F. Williams;* everywhere on gravelly and sandy river-beach, Fort Kent, June 5, 1898, *Fernald*, no. 2289 (type in Gray Herb.); St. John River, Fort Kent, *Pease*, nos. 2347, 2348; sandy or gravelly shores, St. John River, Grand Isle, *Fernald* no. 2290; gravelly shore, St. John River, Van Buren, *Fernald*, no. 25.

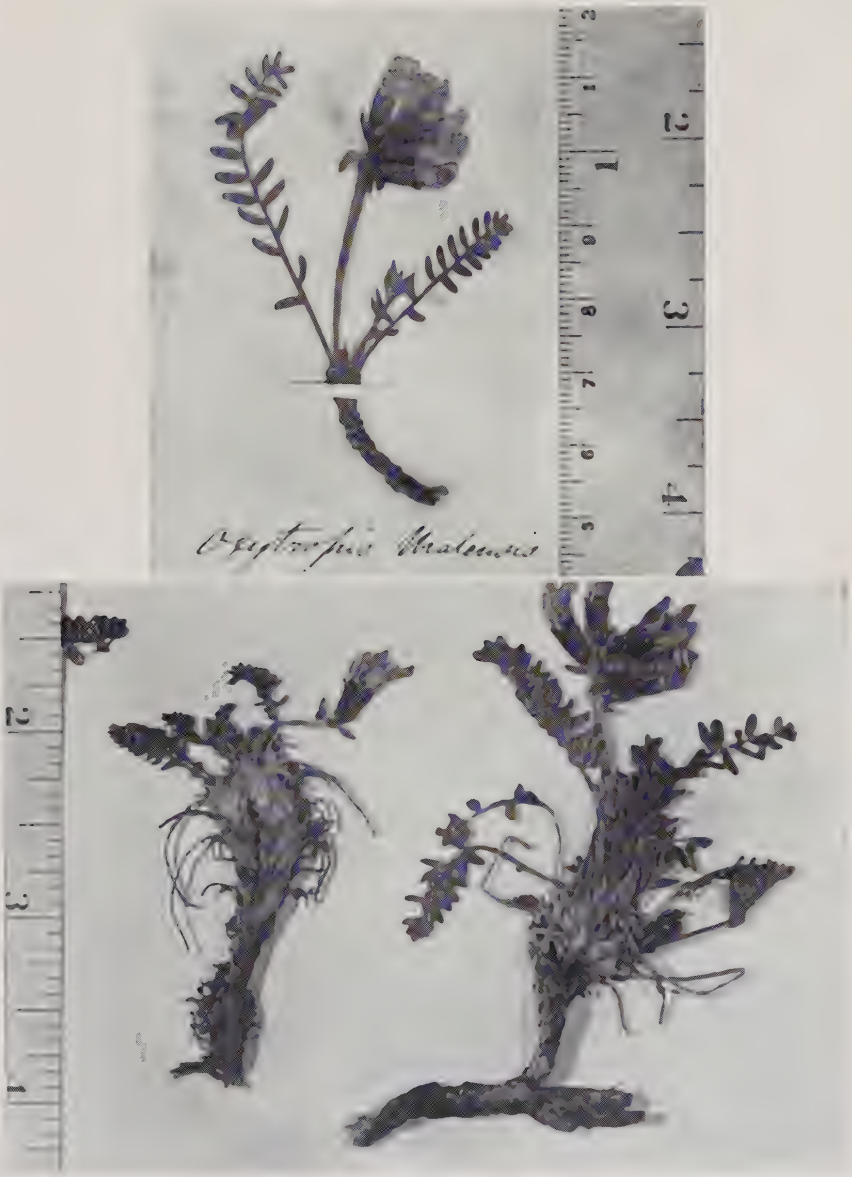
Although generally treated as *O. campestris* (L.) DC. or at most as a variety of it, *O. johannensis* is abundantly distinct. *O. campestris* of Europe (chiefly continental) has strongly ciliate stipules, leaves nearly glabrous, with 8–11 pairs of leaflets, scapes rarely becoming more than 1.5 dm. high ("fructifer . . . 2–5-pollicaris, raro longior"—*Bunge*), spike subcapitate, not elongating, corolla ochroleucous. In fact, Bunge distinguished *O. campestris* from the other species of the section (with silky-villous leaves, more numerous leaflets and purple flowers) by the key characters: "Virens, glabrescens, folia 8–11-juga, flores ochroleuci." *O. johannensis*, on the other hand, has the stipules only slightly if at all ciliate, the leaves silky-villous when young (and often to maturity), leaflets mostly 10–15 pairs, scapes in fruit up to 3.3 dm. high, spike elongating and loose in maturity and corolla (except in rare albinos) purple or purple-violet. Although, like *O. campestris*, it belongs to the Section *Diphragma*, it is scarcely conspecific with it.

7. O. **terrae-novae**, n. sp. (Plate 174), acaulis laxe caespitosa sparse pubescens glabrata virens; stipulis breviter petiolaribus alte connatis, laminis liberis membranaceis deltoideis acuminatis 2–7 mm. longis glabris vel glabratis uninerviis eciliatis vel ad apicem sparse ciliatis; foliis 2–9 cm. longis, petiolis rhachibusque sericeo-pilosis, foliolis 6–12-jugis lanceolatis vel ellipticis 2–8 mm. longis 0.5–4 mm. latis sparse sericeo-pilosis vel glabratis; scapis adscendentibus vel divergentibus 0.15–1.2 dm. altis sericeo-pilosis; spicis subcapitatis paucifloris 1.5–3 cm. longis; bracteis lanceolatis vel ellipticis obtusis vel acutis 3–5 mm. longis subchartaceis glabris vel sparse pilosis; calycibus campanulatis

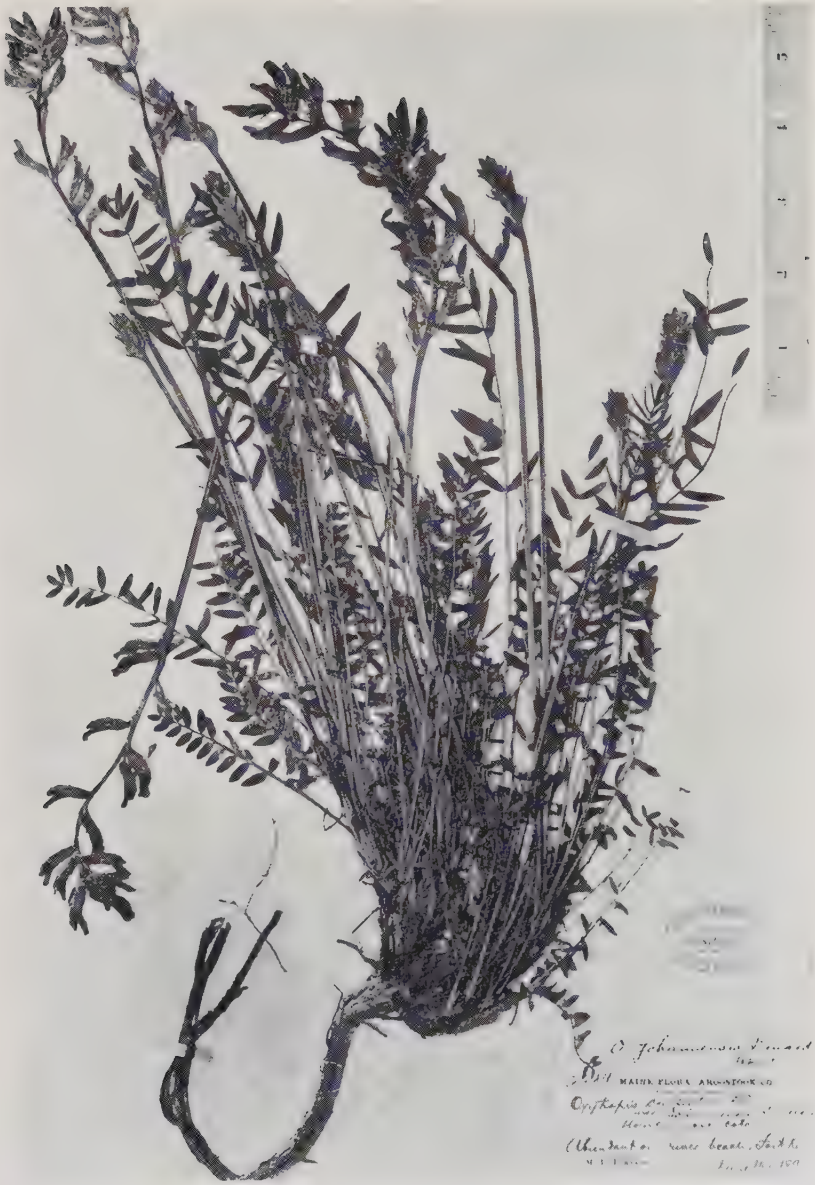
membranaceis nigro-pilosis parciusque albo-villosis, tubo 4–6 mm. longo, dentibus deltoideis 0.5–1.5 mm. longis; corollis purpureis vel violaceis; vexillo 1.2–1.5 cm. longo lamina obcordata 5–8 mm. lata; leguminis angusto-ovoideis tumidis nigro-pilosis breviter cuspidatis rostro excluso 1.2–1.7 cm. longis subbilocularis; seminibus nigrescentibus reniformibus 1.8–2.2 mm. latis 1.5–2 mm. altis.—*O. uralensis*, γ *minor* Hook. Fl. Bor. Am. i. 146 (1834), as to Labrador plant of Morrison. *O. campestris* Gray, Proc. Am. Acad. vi. 235 (1864), in part; Britton in Britton & Brown, Ill. Fl. ed. 2, ii. 390 (1913), as to plant of Labrador and Hudson Strait; not DC. *O. sordida* (as to plant of Labrador) Bunge, Mém. Acad Imp. Sci. St. Pétersb. sér. 7, xxii. no. 1: 83 (1874), not Pers. *O. campestris*, var. *caerulea* Gray, Proc. Am. Acad. xx. 6 (1884), as to Labrador plant; Fernald, Rhodora i. 87 (1899); not Koch. *Spiesia campestris* Britton in Britton & Brown, Ill. Fl. ii. 308 (1897), as to plant of Labrador and Hudson Strait, not Kuntze.—Western Newfoundland, eastern Labrador and the Hudson Strait region of Quebec. Newfoundland: turfy and rocky slopes of Cape Dégrat, Quirpon Island, *Fernald & Long*, no. 28,617; dry crests of trap cliffs, Anse aux Sauvages, *Fernald, Wiegand & Long*, no. 28,604; turfy limestone barrens, Burnt Cape, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss*, no. 28,609; dry limestone gravel, Schooner (or Brandy) Island, *Pease & Long*, no. 28,611, turfy limestone barrens, Cook Point, *Fernald & Gilbert*, no. 28,610; dry rocky and gravelly limestone barrens, Cape Norman, *Wiegand, Griscom & Hotchkiss*, no. 28,612, 28,613; turfy limestone barrens, Four-Mile Cove, no. 28,614; dry heath-barren near Mile Brook, west of Big Brook, *Long & Gilbert*, no. 28,608; by the sea-shore, Poverty Cove, July 16, 1920, *M. E. Priest;* peaty and turfy slopes, limestone barrens, Sandy (or Poverty) Cove, *Fernald, Long & Dunbar*, no. 26,809; dry turfy limestone barrens, Savage Point, *Fernald, Wiegand, Pease, Long, Gilbert & Hotchkiss*, no. 28,606; limestone barrens, Anchor Point, *Wiegand, Gilbert & Hotchkiss*, no. 28,607; peat on dry gravelly limestone barrens, St. John Island, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, no. 28,615 (type in Gray Herb.), 28,616; limestone barrens, Pointe Riche, *Fernald & Wiegand*, no. 3634; dry limestone barrens, upper slopes and tablelands, alt. 200–300 m., Table Mountain, Port-à-Port Bay, *Fernald & Wiegand*, no. 3635, *Fernald & St. John*, no. 10,848, *Mackenzie & Griscom*, no. 10,331; Green Gardens, Cape St. George, *Mackenzie & Griscom*, no. 11,009. Labrador: crevices of rock, Cape Chudleigh, August 5, 1884, *R. Bell;* on granitic rock under 760 m., Razorback Mt., Ryan's Bay, *R. H. Woodworth*, no. 292; on granitic rock at Head of Main Arm of Ekortiarsuk Bay, *Woodworth*, no. 292½; on granitic cliffs at 150–600 m., Head of Nachvak Bay, *Woodworth*, no. 291; on granitic rock, Kikkertasoak Island, Saglek Bay, *Woodworth*, no. 290; on granitic rock under 150 m., Head of North Arm of Saglek Bay, *Woodworth*, no. 293; Port Manvers, July 18, 1926, *C. S. Sewell & A. C. Weed;* sandy soil near the beach,



OXYTROPIS GASPENSIS × 3/8

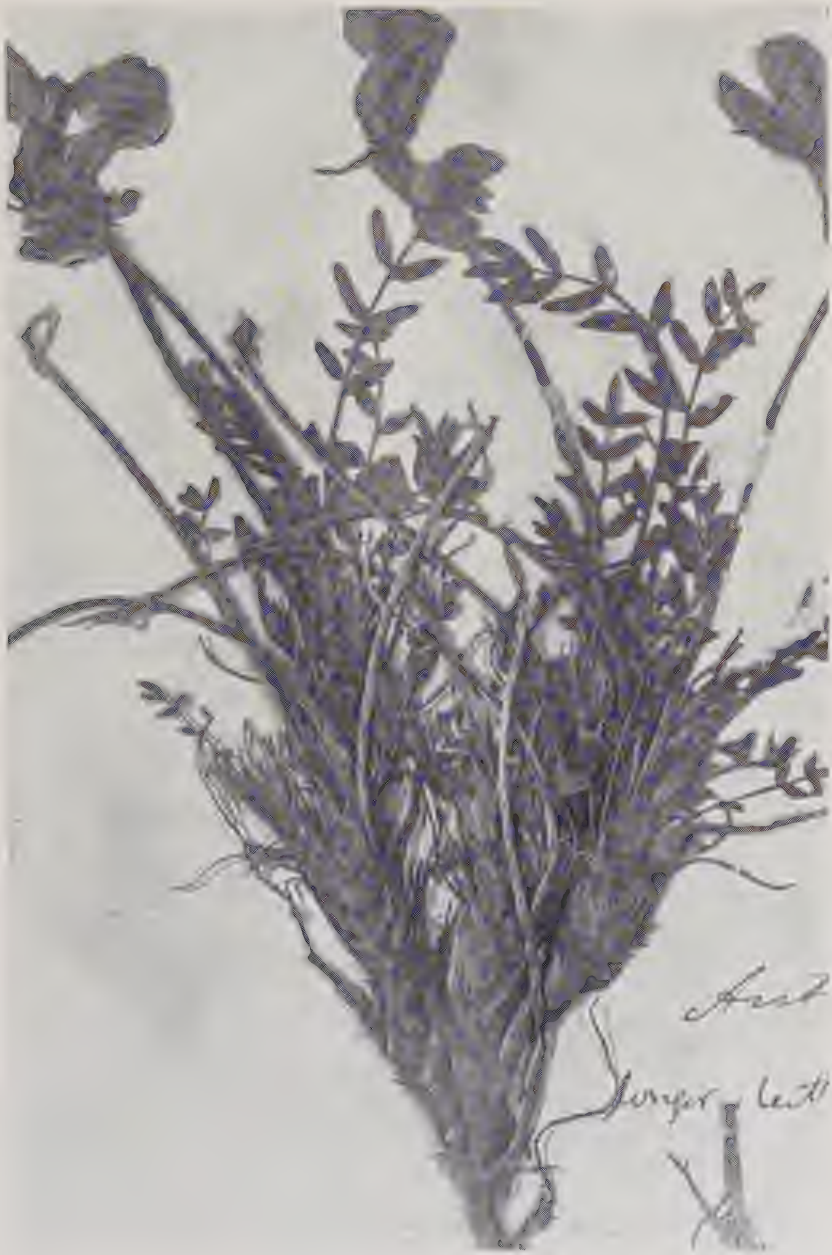


(Upper) Oxytropis arctica × 1
(Lower) Oxytropis hudsonica × 1



OXYTROPIS JOHANNENSIS × $\frac{3}{8}$

Oxytropis terrae-novae × 1



Oxytropis coronaminis × 1

Nain, *J. D. Sornborger*, no. 33; Indian Harbor, *Ralph Robinson*, no. 98; Battle Harbor, *Bowdoin College Exped.* no. 91; barren hill-top, Square Island, *J. A. Allen*, no. 37; Red Bay, *Bowdoin College Exped.* no. 23. UNGAVA DISTR., QUEBEC: Port Burwell, *Soper*, no. 946 (Can); Ungava Bay, 1884, *L. M. Turner;* Fort Chimo, *A. P. Low*, no. 16,300; sand, Cape Prince of Wales, August 21, 1884, *R. Bell.*

Oxytropis terrae-novae is the little plant with crimson or purple-violet flowers which has been generally passing as *O. campestris*, var. *caerulea* Koch. This misidentification seems to have started when Bunge, with only scanty material, suggested that the Labrador plant might belong to *O. sordida* (close to if not quite identical with Koch's *O. campestris*, var. *caerulea*). But that Bunge was not wholly satisfied with such disposition of it is indicated by his discussion. Correctly defining *O. sordida* as a large-flowered plant of the Arctic, with "floribus leucophaeis," vexillum "saepe 5′′′ lata" etc. he added a comment on the Labrador plant:

"Huc etiam trahenda videtur planta labradorica, quamvis pluribus notis abhorrens; gracilior et omnibus partibus minor. Bracteae breviores vix calycis tubum dimidium attingentes. Flores violacei. Calyx 3–4′′′ longus dentibus brevibus triangularibus. Vexillum 6–7′′′ longum, lamina obcordata 2½–3′′′ lata. Alae 5′′′ parum excedentes. Carinae mucro brevissimus. Ovarium 17–23-ovulatum. Legumen oblongum ovatumve, tumidum, breviter cuspidatum, 7′′′ tantum longum, interdum vix semipollicare, rectiusculum, nigro-pilosissimum. Caetera congruunt. An nihilominus species proprii juris? An forsan sequenti [*O. Lamberti*] adjungenda?"—Bunge, l. c. 83.

Bunge's distinctions prove constant and there is no doubt that *O. terrae-novae* is quite distinct from *O. sordida*. Gray, in 1864, had called the Labrador plant *O. campestris* but there is no material in the Gray Herbarium of such early date. In 1884, with a single collection before him (whereas we now have 39 collections and much field-experience with the plant), he called it (along with *O. johannensis*) *O. campestris*, var. *caerulea:* "These are the only American stations I can cite for *O. campestris*, taking that species to comprise *O. sordida*. And as our specimens have clear violet or blue corollas, when not pure white . . . , I adopt Koch's name given to the quite similar form in Europe." The flowers are crimson or purple-violet (blue only after drying) but *O. campestris*, var. *caerulea* Koch, Syn. 181 (1838) is merely a form of the normally yellow-flowered continental European *O. campestris* in which the flowers have some blue colora-

tion. In no other character does it seem to differ from *O. campestris* (see discussion under *O. johannensis*) and it is surely not the plant so characteristic of Newfoundland and Newfoundland Labrador.

S. O. Belli (Britton) Palibine. Acaulescent, with many crowns: stipules membranaceous, whitish; the free portions ovate, acuminate, whitish-villous or in age glabrate: leaves 0.3–1.7 dm. long, loosely ascending, the petiole and rachis loosely white-villous; leaflets in verticils of 2, 3 or 4 or sometimes opposite or subopposite, oblong to lanceolate, 3–10 mm. long, loosely villous: scapes 0.3–1.7 dm. high, villous: spike subcapitate, 3–10-flowered, 1.5–4 cm. long: bracts herbaceous, lanceolate, black-hairy, 5–10 mm. long, divergent: calyx campanulate, black-villous and often with longer white hairs; the tube in anthesis 8–10 mm. long; the black-hairy lanceolate teeth 1.5–3 mm. long: corolla violet, 2–2.3 cm. long; the vexillum 6–8 mm. broad: legume lance-cylindric, rather thin-walled, pubescent with black hairs or with longer white ones, nearly or quite 2-celled, the body 1.2–2 cm. long below the straight and recurved beak: seeds round-reniform to cordate-ovate, olivaceous, 1.5–1.9 mm. broad.—Bull. Soc. Bot. Genève, sér. 2, ii 19 (1910) as *O. Bellii;* as *O. Bellii* (Britton) J. M. Macoun in Low, Cruise of Neptune, 1903–04: 320 (1906), name without proper bibliographic citation; as *O. Bellii* (Britton) J. M. Macoun in Bernier, Rep. Dom. Can. Govt. Exped. D. G. S. 'Arctic,' 1908–09, App. B, 489, 490, with plate (1910); as *O. Bellii* Simmons, Phytogeogr Arct. Am. Archipel. 111 (1913); Britton in Britton & Brown, Ill. Fl. ed. 2, ii. 391, fig. 2568 (1913). *Spiesia Belli* Britton in J. M. Macoun, Can. Rec. Sci. vi. 148 (1894), as "*Spiesia Oxytropis Belli*"; Britton in Britton & Brown, Ill. Fl. ii. 309, fig. 2162 (1897). *Aragallus Belli* (Britton) Greene, Pittonia, iii. 212 (1897).—Shores of northern Hudson Bay; perhaps farther west. Ungava District, Quebec: rocky places, Digges Island, *R. Bell*, no. 1164 (type of *Spiesia Belli*), distributed as *O. podocarpa*, changed to *O. arctica* (Can); Keewatin District: Fullerton, *L. E. Borden*, no. 62,933, *J. M. Macoun*, no. 79,105; Depot Island, 1894, *Geo. Comer;* Chesterfield Inlet, *J. W. Tyrrell*, no. 62,543 (Can), *L. T. Burwash*, nos. 119,028, 119,029, 119,031, 119,032 (Can); Rankin Inlet, *J. M. Macoun*, no. 79,106.

For a remarkably distinct species *Oxytropis Belli* had a most unconventional introduction to botanical recognition. Originally published by the late J. M. Macoun as "*Spiesia Oxytropis Belli*, Britton, n. sp." (1894), it later appeared without discussion or bibliographical citation in a list by J. M. Macoun (1906) as "*Oxytropis Bellii*, (Britt.)," this constituting its first, but quite unsatisfactory enumeration under *Oxytropis*, with the spelling of the specific name altered. In 1897 Britton himself had taken it up as *Spiesia Belli* and in the same year

Greene correctly retained the same (original) spelling of the specific name in *Aragallus Belli* Greene. The first proper transfer to *Oxytropis* was by Palibine under date of February 28, 1910. This was followed later in the year (letter of transmittal dated April 5, 1910) by the listing by J. M. Macoun of "*Oxytropis Bellii* (Britton), Macoun" and the publication of a beautiful plate of the plant (drawn obviously from Borden's flowering material from Fullerton, with fruit from the type, collected on Digges Island by Bell). This plate in Macoun's Appendix to the Bernier Report bears the simple inscription at bottom "*Oxytropis Bellii*, (Britton.)" but loose copies of the plate, intended for use in another but never published work, have been distributed with the printed heading "Geological Survey of Canada Plate XI" and the name at the bottom "*Oxytropis Bellii*, Britton"; while on some of the herbarium specimens the author of the combination is given as Holm. From these notes it is apparent that the real authorship of the combination has been doubtful; but, in view of his properly making the transfer, it should be ascribed to Palibine.

The Appendix to Bernier's Report is entitled: "List of Plants Collected by Mr. J. G. McMillan on Melville Island, in the Autumn of 1908 and Early Summer of 1909";[1] and Macoun there speaks of McMillan's finding on Melville Island "*Oxytropis Bellii*, described from specimens collected on Mansfield Island by Dr. Bell;" and Simmons, accordingly, cites it as occurring on these two islands. The original material came, of course, not from Mansfield Island, but from Digges Island, as correctly stated in the original description published by Macoun; and the McMillan plant from Melville Island preserved in the National Herbarium at Ottawa belongs to a characteristic species[2] of western Arctic America with non-verticillate leaflets

[1] The Report and the Appendix are very rare in American libraries and I am indebted to the kidness of Dr. Malte and of the Geological Survey of Canada for the temporary loan of a copy.

[2] Oxytropis **coronaminis**, n. sp. (Plate 175), acaulis laxe caespitosa pubescens virescens; stipulis petiolaribus alte connatis, laminis liberis membranaceis deltoideis acuminatis dense longeque sericeo-villosis villis flavescentibus; foliis 2–9 cm. longis, petiolis rhachibusque flavido-villosis, foliolis 5–9-jugis anguste oblongis vel lanceolatis 3–10 mm. longis sericeo-villosis; scapis 1–9 cm. altis pilosis; spicis subcapitatis 2–4-floris, floribus divergentibus; bracteis lanceolatis, divergentibus 5–9 mm. longis nigro-pilosis; calycibus campanulatis membranaceis nigro-pilosis parciusque albo-villosis, tubo 7–9 mm. longo, dentibus lanceolato-linearibus 3–6 mm. longis; corollis purpureis vel violaceis 2–2.7 cm. longis, vexilli lamina rotundata obovata valde obcordata 1.2–1.7 mm. lata.—Region of Coronation Gulf, Mackenzie District, Victoria Island and (much smaller) on Melville Island. Mackenzie District: Arctic seacoast, *Richardson* (type in Gray Herb.); Kent Peninsula, August 13, 1926, *W. H. B. Hoare* in Nat. Herb. Can. no. 119, 027a, as *O. arctica;* Epworth Harbour, south coast of Coronation Gulf, July 4, 1915, *Cox & O'Neil*, no. 393 (Can) (no. 98,407 Herb. Geol. Surv. Can.), July 15, 1915, *Cox & O'Neil*, no. 395 (Can) (no. 98,408 Herb. Geol. Surv. Can.); Bernard Harbour, July 19, 1915, *Frits Johansen*, nos. 321*a*, 321*b* (Can) (nos. 98,405 and 98,406 Herb. Geol. Surv. Can.), July, 1915, *R. M. Anderson*,

and other characters which at once remove it from *O. Belli* of the Hudson Bay area.

9. O. ARCTOBIA Bunge. Densely cespitose or pulvinate, very densely white-villous: stipules adnate high on the petioles, the free tips subherbaceous, deltoid, silky-villous: leaves with 3–4 pairs of crowded often folded oblong to obovate white leaflets 1–3 mm. long: scapes scarcely exceeding the leaves, 1–2-flowered, white- or black-villous or with mixed hairs: bracts solitary or paired, herbaceous, villous, about 1 mm. long: calyx densely black-villous, often with some white hairs admixed; the tube in anthesis 5–6 mm. long; the lanceolate blunt teeth 2–3 mm. long: corolla purple or violet; the obcordate vexillum 8–10 mm. long, 6–8 mm. wide: legume sessile, subcylindric, 2.5–3 cm. long, short-acuminate, subcoriaceous, softly white-pubescent with an admixture of black appressed hairs, nearly 2-celled.—Mém. Acad. Imp. Sci. St. Pétersb. ser. 7, xxii. no. 1: 114 (1874); Ostenfeld, Vasc. Pl. Coll. Arct. N. Am. Gjöa Exped. 19, t. 2, fig. 14 (1910); Simmons, Surv. Phytogeogr. Arct. Am. Archip. 112 (1913); Macoun & Holm, Can. Arct. Exped. 1913–18, V. pt. A, 17A, tt. ii. fig. 2 and ix. figs. 4 and 5 (1921); Fernald, RHODORA, xxv. 113 (1923). *O. arctica*, var. *uniflora* Hook. App. Parry 2d Voy. 396 (1825). *O. arctica*, β. *minor* Hook., Fl. Bor.-Am. i. 146 (1834). *O. nigrescens*, var. *arctobia* (Bunge) Gray, Proc Am. Acad. xx. 3 (1884); Macoun, Cat. Can. Pl. i. 509 (1886).—Subarctic and Arctic America from Hudson Strait, Baffin Island to Melville Island, Victoria Island and Mackenzie. BAFFIN ISLAND: Bowdoin Harbor, *Ralph Robinson*, no. 114,022 (Can). VICTORIA ISLAND: Wollaston Land, August, 1915, *D. Jenness*, no. 387 (Can) (no. 98,404 Herb. Geol. Surv. Can.). MELVILLE ISLAND: Winter Harbour, July 6, 1909, *J. G. McMillan*, no. 77,294 (Can) as *O. Belli*.

Oxytropis coronaminis has been confused with *O. Belli*, *O. arctica* and *O. Roaldi* Ostenf. The McMillan plant from Melville Island formed the basis for Macoun's report of *O. Belli* from there; the Richardson material has been cited as *O. arctica* and Hoare's plant taken for it; the others, of recent collection, form the bases of the records of *O. Roaldi* in the Report of the Canadian Arctic Exped. V. Pt. A. 17A where (t. viii. fig. 2) the species was illustrated (with 5-flowered spikes, although the specimens in the National Herbarium of Canada show only 2–4) as *O. Roaldi*, Ostenf. Vasc. Pl. Arct. N. Am. Gjöa Exped. 54, t. iii. fig. 16 (1910). The latter is known, however, only from Hershell Island, Yukon. The type was collected by the Gjöa Expedition and the Canadian Arctic Expedition of 1913–16 secured an excellent collection of it, *Frits Johansen*, no. 234 (Can), which was included in the Report of the Canadian Arctic Exped. (p. 16A) under *O. campestris*, var. *sordida*. *O. Roaldi* has less pubescent stipules than in *O. coronaminis*, appressed pubescence of leaves and scapes, 5–10-flowered spikes, calyx with tube about 5 mm. long and with short triangular teeth, corolla 12–15 mm. long, and vexillum less than 1 cm. broad. From *Oxytropis Belli*, *O. coronaminis* is at once separated by its non-verticillate leaflets, more pubescent stipules with yellowish pubescence, fewer flowers, longer calyx-teeth, and much broader vexillum; from *O. arctica* by its much larger flowers, longer calyx-tube and -teeth and very large corolla with vexillum fully twice as broad as in true *O. arctica*. In its long calyx-teeth *O. coronaminis* strongly suggests the Arctic European *O. sordida* (Willd.) Pers. or *O. campestris*, var. *sordida* Koch, but it is at once separated by its deep purple corolla and especially by its very large vexillum.

12; Fox Island, Gordon Bay, *Soper*, nos. 716, 717 (Can. nos. 119,022, 119,023); Cape Dorset, *Ralph Robinson*, no. 59; *Burwash* (Can. no. 119,033), *Soper*, nos. 744, 678 (Can. nos. 119,021, 119,024). Melville Peninsula: south shore of Fury and Hecla Strait, *Parry* King William Island: Gjöa Harbour, *Godfred Hansen* (Can). Melville Island: 1820, *Edwards*. Victoria Island: Minto Inlet, *Anderson*. Mackenzie District: Kent Peninsula, *W. H. B. Hoare* (Can. no. 119,027); Epworth Harbour, south coast of Coronation Gulf, *Cox & O'Neill*, nos. 393[a], 398 (Can. nos. 98,421, 98,422); Bernard Harbour, *R. M. Anderson* (Can. no. 114,021), *Frits Johansen*, no. 294 (Can. no. 98,423).

Ostenfeld, l. c., has pointed out the characters which separate *Oxytropis arctobia* from the plant of western Arctic America and the Bering Straits region of Siberia which passes as *O. nigrescens* (Pall.) Fischer. In the latter the free tips of the stipules are narrower, the pubescence of the leaves less silky and more scattered and the teeth of the calyx about as long as the tube. This plant, however, which occurs from Chuckches Land, Siberia eastward to Herschel Island at the mouth of the Yukon, is not very satisfactorily placed with *O. nigrescens*. The latter was based upon *Astragalus nigrescens* Pallas, Sp. Astrag. 65, t. liii. (1800), a loosely cespitose plant, collected by Merk in the region between the Aldan River and Okhotsk Sea. Pallas's beautiful plate shows conspicuously attenuate narrowly lanceolate and black-hairy stipule-tips and his description repeatedly emphasizes these characters: "stipulis calycibusque nigro-villosis;" "stipulisque petiolorum nigro-villosis hirtae" and "Folia . . . rhachi utrinque *stipula* acuminata seu semisagittata." The plant of Arctic Yukon, Arctic Alaska and extreme northeastern Chuckches Land, however, is densely cespitose, almost pulvinate, and its stipules have short deltoid and obtuse free tips which are at first white-villous or white-ciliate but soon become quite glabrate. It is the species described by Pallas immediately following *Astragalus nigrescens*, Pallas's *A. pygmaeus*, which Merk got "in terris arcticis Siberiae ad orientem ultimae, Tschucktschis habitatae," probably 2300 km. northeast and 10° north of the area in which *A. nigrescens* was found. Pallas gave a fine plate of *A. pygmaeus* and this is surely the plant of Bering Straits and arctic Alaska which is passing in America as *Oxytropis nigrescens*. It should be called *O. pygmaea*.[1]

[1] Oxytropis **pygmaea** (Pall.), n. comb. *Astragalus pygmaeus* Pallas, Sp. Astrag. 66, t. liv. (1800).—Illustrated as *O. nigrescens* by Ostenfeld, Vasc. Pl. Coll. Arct. N. Am. Gjöa Exped. t. ii, fig. 13 (1910) and Macoun & Holm, Rep. Can. Arct. Exped. V. pt. A. t. ix. figs. 1–3 (1921).

10. *O.* PODOCARPA Gray. Densely cespitose or pulvinate, strigose-silky with white hairs: stipules chartaceous; the deltoid-ovate free tips white-hispid and long-ciliate, finally glabrate: leaves 1–2.5 cm. long; the delicate petiole and rachis subsericeous; leaflets 2–5 pairs, linear to linear-lanceolate, subfalcate, often involute, 2–5 mm. long, loosely appressed-pubescent: scapes only slightly exceeding the leaves, very slender, 1–2-flowered: bracts oblong, glabrous on the surfaces, black-ciliate: calyx tubular-campanulate, membranaceous, black-hairy or with white hairs intermixed; the tube in anthesis 6–7 mm. long; the triangular-lanceolate teeth 2–4 mm. long: corolla violet; the obovate emarginate vexillum 1.5 cm. long, 6–8 mm. broad: legume distinctly stipitate within the calyx, membranaceous, inflated, ovoid; the body 1–2 cm. long, 7–12 mm. in diameter, minutely white-hairy: seeds reddish or brown, obliquely cordate-ovate, rounded, 2.2–2.5 mm. broad.—Proc. Am. Acad. vi. 234 (1864); Bunge, Mém. Acad. Imp. Sci. St. Pétersb. Ser. 7, xxii. no. 1: 117 (1874); Gray, Proc. Am. Acad. xx. 3 (1884), excluding *O. Hallii;* Macoun, Cat. Can. Pl. i. 115 (1883), 509 (1886); Britton in Britt. & Br. Ill. Fl. ed. 2, ii. 389, in part, excluding fig. 2562 (1913). *O. arctica, δ. inflata* Hook. Fl. Bor.-Am. i. 146 (1834). *Astragalus biflorus* Schweinitz ex Gray, Proc. Am. Acad. vi. 234 (1864). *Spiesia podocarpa* (Gray) Kuntze, Rev. Gen. 207 (1891). *S. inflata* (Hook.) Britton, Mem. Torr. Bot. Cl. v. 201 (1894) and in Britt. & Br. Ill. Fl. ii. 307, in part, excluding fig. 2156 (1897). *Tragallus inflatus* (Hook.) A. Nels. Erythea, vii. 59 (1899). *T. podocarpus* (Gray) A. Nels. in Coult. & Nels. Man. Bot. Rocky Mts. 294 (1909), at least as to name-bringing synonym.—A rare species, not often collected, southern Baffin Island and northern Labrador; Yukon and Alaska to southern Alberta. The following specimens have been examined. BAFFIN ISLAND: Amadjuok Bay, *Soper* (Nat. Herb. Can., no. 119,020). LABRADOR: without statement of locality, ex herb. *Schweinitz* (TYPE of species, in Gray Herb.); Ramah, *Stecker*, no. 153; Hebron to Nachvak, *Delabarre*, no. 49. YUKON: longitude 141° W., lat. 67° N., *Cairnes* (Can. Geol. Surv. Can. no. 83,048). ALBERTA: "highest summits of the Rocky Mts.," *Drummond* (co-type of *O. arctica, δ. inflata* Hook.); high Rocky Mountains, *Burke;* Brazeau, south of Brazeau Lake, *S. Brown*, no. 1067; Mt. Paget, *J. Macoun*, no. 65,066; Pipestone Pass, *J. Macoun*, no. 65,067. BRITISH COLUMBIA: summit of McCallum Mt., South Atlin, *Guilliam* (Can., Geol. Surv. Can. no. 101,938). ALASKA: vicinity of Karluk, Kadiak Island, *Rutter*, no. 181; Chiachi Island, June 28, 1874, *Dall;* rocks, Popoff Island, Shumagin Islands, June 19, 1872, *Harrington.*

Gray's original material was a mixture. The first material discussed was the Labrador plant: "The specimens before me are from Labrador, good flowering specimens in the herbarium of Schweinitz," which are quite like *O. artica, δ. inflata* Hook. and were the unpub-

lished *Astragalus biflorus* Schweinitz. Besides the Labrador plant, which is the type, Gray cited, as supplementary, material "from Arctic America . . . ticketed '*O. campestris*' by Sir William Hooker (which may perhaps be his *O. campestris*, var. *melanocephala*), and one from Richardson named by him *O. arctica;* from the Rocky Mountains, Sir William Hooker's *O. arctica* δ, of Drummond's collection; . . . ; and finally, a fruiting specimen of the latter from Bourgeau's collection." The Arctic American plants referred to by Gray I have not seen, but they are very likely not identical with the others. The Drummond material of *O. arctica*, δ. *inflata* Hook. is, as stated, identical with the Labrador plant, but the Bourgeau plant is *O. Hallii* Bunge, a much coarser species with longer lanceolate free stipule-tips, longer leaves with more numerous and coarser leaflets, and capsules firmer, less stipitate and larger than in *O. podocarpa*. The Colorado plant commonly referred to the latter species is *O. Hallii* and some other Alberta specimens besides those of Bourgeau belong to it.

Explanation of Plates 171 to 175

(Photographs by *J. F. Collins*)

171, Oxytropis gaspensis × ⅜, type specimen, *Fernald & Smith*, no. 25,874. 172 (lower), O. hudsonica × 1, duplicate type, *Low*, no. 14,272; (upper), O. arctica × 1, duplicate type from Melville Island, *Parry's* Voyage, 1820. 173, O. johannensis × ⅜, type specimen, *Fernald*, no. 2289. 174, O. terrae-novae × 1, *Wiegand, Gilbert & Hotchkiss*, no. 28,607. 175, O. coronaminis × 1, type specimen, Arctic sea-coast (Coronation Gulf), *Richardson*.

(To be continued)

ERAGROSTIS PEREGRINA VERSUS E. DAMIENSIANA

M. L. Fernald

A weed of roadsides and railroads, which has been spreading rapidly in recent years, was described in 1917 as *Eragrostis peregrina* Wiegand, Rhodora, xix. 95 (1917). Since Wiegand called attention to it this ruderal grass has become generally known, but now, in Repertorium Specierum Novarum Regni Vegetabilis, xxiv. 323 (1928), Thellung takes up for it *Eragrostis Damiensiana* Bonnet, Le Naturaliste, 3e anné, no. 5 (15 mai 1881), 412 and cites two pages of references in

European literature dating back to 1821. The name *E. inconspicua* Hort. Paris, Coss, & Balansa, Actes du Congr. Internat. Bot. Paris (1867) 118 is excluded because published in synonymy. But it would certainly seem that *E. Damiensiana* Bonnet was also published in synonymy. Bonnet's paper was entitled "NOTE SUR L'ERAGROSTIS PILOSA P. B. VARIÉTÉ DAMIENSIANA." After an introductory paragraph about the plant having been called to the attention of Balansa by M. Ch. Damiens as growing in the pavement of the courtyard of the Ministry of War in Paris, Bonnet, in a careless manner spoke of "l'E. Damiensiana Mihi (olim)" and throughout his discussion he continued to use the binomial, until the closing paragraph, where, acting up to the conviction expressed in the title of the article, he said:

"En résumé, l'Eragrostis découvert par M. Damiens dans la cour du Ministère de la Guerre et signalé pour la première fois par M. Balansa dans le Congrés de botanique (**1867**) constitue une forme affine à l'E. pilosa P. B., mais qu'il était cependant utile de distinguer; je propose donc de lui donner le nom de son inventeur et de l'appeler désormais *Eragrostis pilosa* P. B., variété *Damiensiana*."

It should be noted, further, that Bonnet had no thought of treating the plant as a species. In the paragraph where he first used the binomial he explicitly stated that it was not a species: "Je ne veux cependant pas proposer comme espèce la plante du Ministère de la Guerre, ses affinités avec l'E. pilosa P. B. me paraissent trop évidentes et son origine est trop obscure pour qu'on puisse assurer qu'elle constitue bien un type légitime dans ce genre Eragrostis où les espèces ont été déjà bien multipliées et basées souvent sur de bien faibles caractères." Until the very recent publication by Thellung (1928), the binomial *E. Damiensiana* has been regularly treated as published in synonymy and not as a legitimate specific name. In fact, Thellung himself has so considered it. In 1907, elevating the plant from varietal to subspecific rank as *E. pilosa* "ssp. **Damiensiana** (Bonnet) Thell. comb. nov." [1] he gave as part of the synonymy "E. pilosa var., Cosson et Balansa! Congr. intern. bot. (1867), 117; E. inconspicua hort. Paris ex Coss. et Bal. l. c. 118 [in syn.]; . . . E. pilosa var. Damiensiana E. Bonnet! . . .; E. Damiensiana E. Bonnet ibid, in textu [pro syn.]." Again in Fedde, Repert. Nov. Sp. v. 360 (1908), he repeated his treatment of *E. Damiensiana* as published in synon-

[1] Thellung, Vierteljahrsschr. d. Naturf. Ges. Zürich, lii. 438 (1907).

ymy. To be sure, Thellung after calling the plant *E. pilosa,* subsp. *Damiensiana* and publishing a variety of it, referred to it in a footnote as *E. Damiensiana* and indicated that this was the name to be taken up if the plant should prove to be a species; and in his latest work (1928), treating the plant as a species, "**Eragrostis Damiensiana** Ed. Bonnet", he justifies the use of this name, originally published as a synonym, because, prior to the unequivocal publication of *E. peregrina* Wiegand (1917), he (Thellung) had indicated *E. Damiensiana* in a "not. (in textu, nomen eventuale)" as the name to take up should the plant prove to be a species.

Whether such an equivocal name as *Eragrostis Damiensiana* should be taken up to displace an unequivocal name of later date seems very doubtful. If, in 1907, Thellung had whole-heartedly and unequivocally taken up *E. Damiensiana* and treated it as the name of a true species, thereby validating it, there would be no question. But in view of the facts, that the binomial was first published as a synonym for a variety and by Thellung, in 1917, only as a "nomen eventuale" for a plant which he then treated as a subspecies, it would seem that its first *unequivocal* publication as a specific name must date from 1928 and, therefore, that it cannot rightly displace *E. peregrina* Wiegand (1917).

Gray Herbarium

Solidago calcicola in Matane Co., Quebec. On Aug. 18, 1926, while botanizing in the vicinity of Metis Beach, the writer gathered the interesting Northern golden-rod *Solidago calcicola* Fernald, which was found growing sparingly, along with *Solidago macrophylla* Pursh, at the edge of a wood on the lower road from Metis Beach to Mont Joli. The determination has been confirmed by Professor M. L. Fernald, to whom I am also indebted for the identification of an earlier gathering of the same plant, made on Aug. 12, on the shore road between Metis Beach and Leggatt's Point. Professor Fernald informs me that this record extends the range of the plant into Quebec, the previous records from the limestone mountains of Gaspé Co. having been based on the Alpine species now known as *S. mensalis* Fern. A specimen has been deposited in the Gray Herbarium. –T. W. Edmondson, New York University.

Chenopodium carinatum and other unusual Weeds.—There appeared in my garden at Milton, Mass., late in the summer of 1927 a single plant which much resembled *Chenopodium Botrys*. I cherished it as there was hope of its being another species, which later proved to be the case. Professor Fernald, who kindly identified it, found it was *Chenopodium carinatum* R. Br. and commented "long established on Cape Cod, apparently not previously noted north of there." And further: "see F. S. Collins, Rhodora xiii. 22 (1911)."

This should be diligently sought amongst our weeds in dry places. The Flora of The Boston District may be somewhat expanded by such procedure.

I also found in my garden last summer a single plant of *Salsola Kali* L., var. *tenuifolia* G. F. Meyer, perhaps worthy of passing mention, and several plants of *Oxalis europaea* Jord., forma *villicaulis* Wiegand, Rhodora xxvii. 135 (1925), with creamy white flowers. — Nathaniel T. Kidder, Milton, Massachusetts.

FIFTH INTERNATIONAL BOTANICAL CONGRESS, CAMBRIDGE, 1930

Chairman of Executive Committee: Prof. A. C. Seward, F.R.S.
Hon. Treasurer: Dr. A. B. Rendle, F.R.S.
British Museum (Natural History), London, S.W. 7.
Hon. Secretaries: F. T. Brooks, *31 Tenison Avenue, Cambridge, England.*
T. F. Chipp, *Royal Botanic Gardens, Kew, England.*

February 1, 1928.

PRELIMINARY NOTICE

Dear Sir or Madam,

At the Fourth International Botanical Congress held at Ithaca, United States of America, in 1926, an invitation from British botanists to hold the next International Botanical Congress in England was accepted. It has since been decided that the Fifth International Congress shall be held at Cambridge from August 16th to August 23rd, 1930, with excursions during the following week.

An Executive Committee of British botanists has been appointed to make the necessary arrangements for the Congress. The members of this Executive Committee are Dr. F. F. Blackman, Professor V. H. Blackman, Dr. E. J. Butler, Professor Sir John Farmer, Professor F. E. Fritsch, Professor Dame Helen Gwynne-Vaughan, Dr. A. W.

Hill, Professor Neilson Jones, Sir David Prain, Dr. A. B. Rendle (Treasurer), Professor A. C. Seward (Chairman), Professor W. Stiles, Professor A. G. Tansley, together with Mr. F. T. Brooks and Dr. T. F. Chipp (Secretaries).

On behalf of the Executive Committee we write to express the hope that you will be able to attend the Congress, and the Executive Committee request that you will be so good as to extend this invitation to any of your colleagues who may not receive a copy of this letter.

The subscription for membership of the Congress will be One Pound (£1), which should be paid to the Treasurer, Dr. A. B. Rendle, British Museum (Natural History), London, S.W. 7, before January 1st, 1930, if possible, or, at the latest, by April 1st, 1930. Early notification to the Treasurer of your intention to attend the Congress is particularly requested.

As at present arranged the Congress will be organized in the following Sections: Palaeobotany, Morphology (including Anatomy), Taxonomy and Nomenclature, Plant Geography and Ecology, Genetics and Cytology, Plant Physiology, Mycology and Plant Pathology.

For each of these Sections a British Sub-committee has been appointed, by which the programme for each Section will be arranged. The Chairmen of these Sub-committees and their addresses are as follows:

Palaeobotany: Professor A. C. Seward, Botany School, Cambridge.
Morphology (including Anatomy): Professor F. E. Fritsch, Danesmount, Tower Hill, Dorking, Surrey.
Taxonomy and Nomenclature: Dr. A. W. Hill, Royal Botanic Gardens, Kew, Surrey.
Plant Geography and Ecology: Professor A. G. Tansley, Department of Botany, The University, Oxford.
Genetics and Cytology: Professor Sir John Farmer, Imperial College of Science and Technology, London, S.W. 7.
Plant Physiology: Dr. F. F. Blackman, Botany School, Cambridge.
Mycology and Plant Pathology: Dr. E. J. Butler, Imperial Bureau of Mycology, 17, Kew Green, Kew, Surrey.

As far as possible the programme for each Section will consist of papers given at the invitation of the Sectional Sub-committee; arrangements for general discussions will also probably be made by the Sectional Sub-committees.

Communications made to the Congress by means of papers or by participation in the general discussions will be permissible in English, French or German.

Further information will be sent in due course. Correspondence of a general nature about the Congress should be addressed to one or other of the Secretaries.

We are,

Yours very truly,

A. C. SEWARD (*Chairman of Executive Committee*).
A. B. RENDLE (*Treasurer*).
F. T. BROOKS, T. F. CHIPP (*Secretaries*).

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Vol. 30, no. 355, including pages 125 to 136 and plate 170, was issued 24 July, 1928.